times included widely different species in a single one; as a matter of fact, the lines of demarkation between species have usually been matters of opinion and judgment, and we have had and presumably always shall have, authors who will take broad or narrow views. This being the case, the necessity of determining in some way the absolute types of species is becoming more and more apparent, and such a work as the one now reviewed is a valuable contribution to taxonomic literature.

The type specimens of some species could not be found by Mr. Hitchcock, and presumably some of these have been lost; in such instances he has been obliged to base his conclusions upon the original descriptions; three of the species described by Swartz are those apparently preserved without types. If, in such cases we could be sure that the types do not exist, it seems to the writer that it would be advantageous to designate some other specimen as an artificial type, taking all possible care to select such a specimen from the characters assigned in the original description, and from as near the type locality as possible.

A list of new names and those replacing names in current use is appended.

N. L. Britton

DR. JOHN B. TRASK, A PIONEER OF SCIENCE ON THE WEST COAST

Dr. John Boardman Trask, who came to California in 1850, was born in Roxbury, Mass., in 1824. He died in San Francisco, July 3, 1879. His death was a public loss and was so regarded by all who were familiar with his career and varied services to the commonwealth and the community in which he lived.

Following the close of his connection with the United States and Mexican Boundary Survey, he became the first state geologist of California and was one of the illustrious eight who founded the California Academy of Sciences.

Two years and more have passed since the fine building, the home of the academy, the gift of James Lick, was destroyed by fire and earthquake. In considering that memorable event with its various tragic incidents and the loss of the library and collections, there arise from the ruins remembrances of other and earlier days, recollections of that little coterie of eight men who came together on the sixteenth of May, 1853, and organized the first society of natural history west of the Mississippi River—an event in its way equally noteworthy, though lacking the spectacular elements of the April disaster.

Soon after my arrival in California in June, 1858, I became acquainted with most of these pioneers in science, and with some of the earlier recruits who joined the little squad of charter members. Of these latter and their associates[1] it may be said, without injustice to any, that Dr. Trask, by virtue of his genial qualities, untiring energy and all-around ability, was the leader, closely followed by Dr. Albert Kellogg, of precious memory, who in the new environment of his adopted state reveled amid the multifold glories of field and forest and lived, as it were, in a botanical paradise.[2]

That these men and their fellows were regarded in those strenuous hurly-burly days of the "gold fever," as akin to cranks, puttering with their shells, and bugs, and posies, was not an unnatural thought to the average man, hustling for the "almighty dollar" or rather for the "golden nugget." However

[1] Dr. William P. Gibbons, one of the founders, described several species of fishes. Among the very earliest members were Dr. H. H. Behr, entomologist and writer on the Lepidoptera, etc.; Dr. W. O. Ayres, ichthyologist; Hiram G. Bloomer, botanist, and Col. Leander Ransom and Dr. Arthur B. Stout.

[2] Whoever has read Dr. Kellogg's "Forest Trees of California," published in the Second Annual Report of the State Mineralogist of California, 1880–2, will readily admit the propriety of these words. The plants described by him number over 300. A complete list carefully sought from all sources was published by the Academy in 1885 in the form of a Bulletin. Dr. Kellogg died on the 31st of March, 1887, and was buried in Mountain View cemetery near Oakland.

eccentric, time and place considered, they kept "the noiseless tenor of their way," led by the spirit that inspired and possessed them, and builded better than they knew, doubtless, not better than at times they hoped. As Dr. Kellogg was the first resident Californian to describe the botanical forms of the state, so Dr. Trask was the first to describe the recent and fossil shells, as may be seen by reference to the first volume of the *Academy's Proceedings* in 1855–6, which includes the following: *Anodonta Randalli* = *A. angulata* Lea, *Anodonta*[3] *triangularis* = *A. Nuttalliana* Lea, *Anodonta rotundovata* = *A. Wahlametensis* Lea, from the Sacramento River and lagoons, and *Alasmodon Yubaensis* = *Margaritana margaritifera* Linnæus, *var. falcata* Gould, from the Yuba River.

In the same volume certain fossil mollusks are described as follows: *Ammonites Batesii* from Arbuckles Diggings, Shasta County; *Chemnitzia papillosa, Tornatella elliptica, Murex fragilis* and *Fusus Barbarensis,* all from Santa Barbara; *Fusus robustus* and *F. rugosus* from San Pedro, *Ammonites Chicoensis* and *Baculites Chicoensis,* both from Chico Creek, and subsequently the following: *Plagiostoma*[4] *Pedroana, P. annulatus* and *P. truncata* from San Pedro, Calif.

His last paper, "On Nine New Species of Zoophytes from the Bay of San Francisco and adjoining localities," was published in the Academy's Proceedings, March 30, 1857. It described the following: *Sertularia anguina, S. furcata, S. turgida, Plumularia Franciscana, Crisidia gracilis, Crisea occidentalis, Menipea occidentalis, Scrupocellaria Californica,* and *Hippothea amabilis.*

By resolution of the State Senate of California, passed March 26, 1853, Dr. Trask was called upon "for such information as he may possess relative to the Geology[5] of California and productive resources of the state." This report, of which only 2,000 copies were printed, is entitled:

1. "Report of 1853, Geology of the Sierra Nevada or California Range," by John B. Trask, Sacramento, 1853, 31 pp. It contains a sketch of the geology and mineral resources of the eastern valleys of the Sacramento and San Joaquin, and to the coast line within 41st and 42d degrees of north latitude, from personal observations made during the years 1850–52. Reviewed *Mining Mag.,* 1853, vol. 1, pp. 6–23.

2. "Report on the Geology of the Coast Mountains, Embracing their Agricultural Resources and Mineral Productions," also portion of the Middle and Northern Mining Districts, by Dr. John B. Trask, state geologist, Senate Doc. No. 14, Sacramento, 1855, 95 pp. This report contains a description of the physical geography of the Coast Mountains; Geology of the Coast Mountains; Tertiary rocks of the Coast Mountains; Primitive rocks of the Coast Mountains; Volcanic rocks of the Coast Mountains; Geology of the San Bernardino Mountains; Stratified rocks of the San Bernardino chain of Los Angeles; Artesian borings; Soil and productions of Los Angeles; Mineral productions of Los Angeles; Country north of the American River; Mineral district of the Upper Sacramento Valley. Geology of the northern mountains; Local geology of the Northern Coast Mountains; Carboniferous limestone of the eastern part of Shasta County; Trinity County; Structure of the Sacramento Valley; Tertiary rocks and other deposits of the Sierra Nevada; Placer Mining; Quartz veins; Quartz mines, with description of the mines and statistics.

3. "Report on the Geology of the Coast Mountains and Part of the Sierra Nevada,

[3] These and the two following have been regarded for the last twenty-five years by the principal conchologists of the west coast as mutations of *A. Nuttalliana.*

[4] See Dr. W. H. Dall's comments on the Pectens of the West Coast in *Transactions Wagner Free Institute,* Vol. III., Part IV., p. 705, April, 1898, and "The Tertiary and Quaternary Pectens of California," by Dr. Ralph Arnold, U. S. Geological Survey, Professional Paper, No. 47, p. 90, Washington, 1906.

[5] Of the value of Dr. Trask's geological work I am not competent to express an opinion; it should, in common fairness, be judged by the standard of his day, rather than of the present time.

Embracing their Industrial Resources in Agriculture and Mining," by John B. Trask, state geologist, Assembly Doc. No. 9, 1854, 92 pp. Contains a description of the Geology of the Monte Diablo range; Salinas Valley, from Point Pinos to the Nacimiento River; Santa Cruz Mountains; Structure of the valleys of the Sacramento and San Joaquin; Review of the geological changes in the Coast Mountains and Monte Diablo ranges; Classification of the rocks of the Coast Mountains and Monte Diablo ranges; Position and relation of the volcanic rocks of the Tertiaries; Volcanic rocks preceding the Tertiary era; Most recent volcanic rocks of the Coast Mountains; Changes of level and river terraces; Soils of the Santa Clara valley and shores of the Bay of San Francisco; Valley of the Salinas; Soils of the Salinas, Pajaro Valley, Livermore Valley; Mineral resources of the Coast Mountains; Mineral districts, embracing parts of the counties of Nevada, Placer, El Dorado and Calaveras; Quartz veins and their relative age in California; Character and position of the older veins below the surface; Present government of metallic veins: Description of the mines, with a list of gold mines.

4. "Report on the Geology of Northern and Southern California, Embracing the Mineral and Agricultural Resources of those Sections, with Statistics of the Northern, Southern and Middle Mines," by Dr. John B. Trask, Assembly Doc. No. 14, Session of 1856, 66 pp. Contains a description of the physical geography of the Coast Mountains, lying north of the Bay of San Francisco; Geological structure of the Coast Mountains; Mineral character of the primitive rocks of the Coast Mountains; Soils of Petaluma County; Plains west of the Sacramento River; San Bernardino; Geology of Table Mountain, Tuolumne County; Carboniferous rocks of the northern district; Salines of the Upper Sacramento Valley; Description of mines, etc.; Analyses of saline waters from Lick Springs, Shasta County; Gold mines in operation in 1855; Table of altitudes.

5. "Report on the Geology of the Sierra or California Ranges," by John B. Trask; *Pharmaceutical Journal,* vol. 14, 1855, pp. 20–24.

His numerous papers on earthquakes in California from 1812 to 1865 need only to be mentioned here.[6] These have been listed by General Vogdes[7] as well as Dr. Trask's other papers. This list of titles I have quoted *in extenso* from the General's paper.

Dr. Trask's medical education, we learn from Dr. Kellogg, was broadly thorough. He successfully passed examinations in geology, mineralogy, technical and applied chemistry, proximate and ultimate analysis, microscopy, medical botany, surgery, theory and practise of medicine, and cognate sciences, completing the course of lectures required for the certificate of the Yale faculty, according to the laws of Connecticut. That he profited by and made good use of these studies is evident from his performance and the honorable recognition he received from various European and American learned bodies and honorary degrees from abroad for his researches in organic chemistry, mineralogy, microscopy and medical botany.

The following species of Californian mollusks, recent and fossil, have been named in his honor: (1) *Limnœa Traskii* Tryon; (2) *Helix* (*Epiphragmophora*) *Traskii* Newcomb; (3) *Actæon Traskii* Stearns; (4) *Meretrix Traskii* Conrad; (5) *Ammonites Traski* Gabb; (6) *Carbula Traski* Gabb; (7) *Nucula Traskana* Meek; (8) *Patella Traski* Gabb; (9) *Pecten Traski* Gabb.

[6] Dr. Trask's data are practically embodied in Dr. E. S. Holden's "Catalogue of Earthquakes on the Pacific Coast, 1769 to 1897," *Smithsonian Miss. Coll.*, 1087, Washington, D. C., 1898.

[7] "A Bibliographical Sketch of Doctor John B. Trask," etc., by Anthony W. Vodges, with portrait, pp. 27–30, *Trans. San Diego Society of Natural History,* Vol. I., No. 2, 1907. See, also, *Proc. Calif. Acad. Sciences,* Vols. I., II., III., and "Catalogue California Fossils," compiled by J. G. Cooper, M.D., in Seventh Annual Report of State Mineralogist, Sacramento, State Printing Office, 1888. "Remarks of Dr. A. Kellogg on the late Dr. John B. Trask before the California Academy of Sciences, July 21, 1879."

Numbers 2 and 3 are living and Quaternary, and 5–9, inclusive, are Cretaceous (and Eocene) of Cooper's Catalogue.

Through him the medical profession of the west coast was first made acquainted with the mode of preparation and therapeutic effects of Mentel's aluminated solution, Pravoy's solution of perchloride of iron, Monrel's salt and the syrup of superphosphate of iron and its combinations; liquid propylamin, an antidote for rheumatism of the acute type, liquid rennet or pepsin wine for gastralgia, etc., and other valuable medicaments.

Among the plants, the virtues of which he either discovered or made known to the profession were yerba santa (*Eriodictyon*), for rheumatism, gout, etc.; *Damiana,* a nerve tonic and aphrodisiac; *Grindelia robusta* for oak or rhus poisoning and asthma, in certain cases; yarrow (*Achillea millifolium*), which he proved to be an efficient emmenagogue; canchelagua (*Erythræa,* of the West Coast), a bitter tonic and antifebrile; *Aspidium argutum* root (kidney fern), as an antidote for the tapeworm; manzanita leaves (*Arctostaphylos*) as an antilithic kidney and bladder tonic; and tincture of *Kalmia latifolia* as an extraordinary sedative, etc.

In 1858, when I made his acquaintance, he commenced the publication, in conjunction with Dr. David Wooster, of the *Pacific Medical and Surgical Journal,* which, after many years of conscientious and laborious editorial work, passed out of his hands into the charge of other members of the profession.

In the great struggle of the civil war for the preservation of the union, he followed the flag as assistant surgeon of volunteers. As a physician he was skillful, quick and accurate in diagnosis, prompt and resourceful in practise, quite free from the acquisitive instinct, and like his Oakland friend, Dr. Newcomb,[8] and his old-time friend and collaborator in the academy, Dr. Kellogg, from whom I have largely quoted, "earnest and generous hearted, ever ready to serve those who needed his services without money and without price, and ever ready to lend a helping hand or do a kindly deed."

I knew them well and I could relate many incidents of my own knowledge, illustrative of their goodness and benevolence. In the twilight of old age, looking back to those days of frequent and sympathetic contact, brought together as we were by similarity of tastes and habits of thought, memory recalls their generous natures and sterling qualities, and inspires the hope that these men may not be altogether forgotten.

ROBERT E. C. STEARNS
LOS ANGELES, CAL.

[8] Dr. Wesley Newcomb, born in the state of New York in 1808. He made Oakland his home in 1858, where he resided for about ten years. He is well known by his conchological writings, especially on the land shells (Achatinellidæ) of the Hawaiian Islands, where he practised medicine for five years. He died in Ithaca, N. Y., on January 26, 1892. See *The Nautilus,* Philadelphia, March, 1902.

SPECIAL ARTICLES

THE GRADING OF STUDENTS

THE problem of how students should be graded in order to make the results of grading equitable is of interest to the psychologist both as a theoretical and as a practical problem. Its practical aspect must be of the greatest importance to any teacher in any subject, in school or college. Professor W. S. Hall[1] published a paper on this subject a few years ago, the conclusion of which is that average classes of students, doing honest work and marked equitably, will yield results which when tabulated should conform to the binomial curve, *i. e.,* the number receiving medium marks should far exceed the number receiving high or low marks. The solution of the problem, then, consists merely in the fulfilment of two conditions, honesty on the part of the student and equity on the part of the instructor when applying the marks agreed upon by the faculty. Actually, however, the problem is still far from its solution.

[1] "A Guide to the Equitable Grading of Students," *School Science and Mathematics,* Smith & Turton, Chicago.